

I claim:

1. An anti-theft system for a motor vehicle, comprising:

a vehicle-mounted transceiver unit for emitting an interrogation signal, said transceiver unit having an antenna unit emitting a wave having one of an elliptical polarization and a circular polarization and the wave includes the interrogation signal;

a portable code transmitter transmitting back a response signal if said code transmitter receives the interrogation signal; and

a vehicle-mounted evaluation unit receiving and checking an authorization of the response signal and if the response signal provides proper authorization, said evaluation unit one of triggers and enables vehicle-specific functions.

2. The anti-theft system according to claim 1, wherein at least one of said transceiver unit and said code transmitter has at least two antennas disposed approximately perpendicularly to one another and are controlled phase-shifted with respect to one another for a transmission of signals in order to generate the wave.

4. A method for operating an anti-theft system, which comprises the steps of:

receiving the interrogation signal in a portable code transmitter; and

5. The method according to claim 4, which comprises generating the wave using two coils disposed perpendicularly with respect to one another, the two coils functioning as

antennas and are actuated by a phase angle of less than/equal to  $90^\circ$  with respect to one another.

6. The method according to claim 5, which comprises actuating one of the two antennas for at least a predetermined time period starting at a predetermined time with a modified transmission power.

7. A method for operating an anti-theft system, which comprises the steps of:

receiving an interrogation signal in a portable code transmitter and a response signal is subsequently transmitted back as a wave having one of an elliptical polarization and a circular polarization; and

recognizing the response signal as being authorized by a vehicle-mounted transceiver unit only if, at least two field components of the response signal which are different in their spatial direction are received and, a coded information item contained in the response signal corresponds to a coded information item expected by a vehicle-mounted evaluation unit.

8. The method according to claim 7, which comprises generating the wave using two coils disposed perpendicularly

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with respect to one another, the two coils functioning as antennas and are actuated by a phase angle of less than/equal to  $90^\circ$  with respect to one another.

9. The method according to claim 8, which comprises actuating one of the two antennas for at least a predetermined time period starting at a predetermined time with a modified transmission power.

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